

**NORTHERN CALIFORNIA
EDUCATION AND RESEARCH
CENTER FOR OCCUPATIONAL
SAFETY AND HEALTH**

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**ANNUAL REPORT
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Northern California Education and Research Center Annual Report
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Center-Wide Highlights *Director John Balmes, MD*

The Northern California Education and Research Center of the Center for Occupational and Environmental Health (COEH) trains students for leadership positions in occupational and environmental health, while engaging in cutting-edge research in areas of interest to workers and employers. Forty-six trainees in medicine, nursing, industrial hygiene, and ergonomics were part of the training program, in addition to two TRT trainees from other disciplines. Of those, 37 were partially or fully supported by NIOSH. An additional 8 students took occupational health and safety courses. Center faculty and students continue to be highly productive in terms of both extramural grant support and publications.

With permission from NIOSH, two occupational epidemiology graduate students were funded in the 2010-2011 academic year, one at the master level and one at the doctoral level. We are pleased that our application to add Occupational Epidemiology as a core program of our center under the leadership of Dr. Ellen Eisen was successful.

The Center leadership has undergone several changes. Dr. Marion Gillen, Deputy Director, decided to retire for medical reasons, effective June 30, 2011. Ms. Patricia Quinlan, MPH, CIH, who has been the industrial hygienist in the Occupational and Environmental Medicine (OEM) program at UCSF for many years, will replace Dr. Gillen as Deputy Director. Ms. Quinlan has a major role in teaching OEM residents and Occupational and Environmental Nursing students at UCSF. She also plays an important role in the training of Industrial Hygiene students at the UCSF OEM Clinic and in the laboratory component of the Exposure Assessment and Control II course at UC Berkeley. Robin Baker, MPH, long-time Director of the Labor Occupational Health Program at UC Berkeley, has become the Director of Research-to-Practice for the Center and will assist Dr. Balmes and Ms. Quinlan in Center administrative activities, especially in the areas of communication and outreach.

Occupational and Environmental Medicine (OEM) Program *Directors: Gina Solomon, MD, MPH and Stephen Born, MD, MPH*

The OEM program underwent a site visit by the American College of Graduate Medical Education (ACGME) in October of 2010. We are pleased to report that we received full 5-year reaccreditation.

The OEM program successfully competed for Health Resources and Services Administration (HRSA) funding which supports Preventive Medicine residency programs in improving care to the underserved. This funding has supported program expansion by adding additional funding for residents for the next two years. It will also allow increased outreach and partnerships with community clinics, research opportunities in new sectors, and trainee involvement in model workplace wellness programs. This year, we established partnerships with three northern CA clinics for the underserved. We have been teaching seminars for providers in those clinics, and receiving telephone consultations and on-site clinical referrals.

Dr. Solomon conducts outreach by conducting seminars and giving lectures for UCSF housestaff. She also gives annual lectures to UCSF medical students on occupational health hazards for day laborers. Dr. Solomon collaborated with Dr. Burgel of the OEHN program on an interdisciplinary course focusing on health effects of the Gulf oil spill, offered to nursing and medical students in the fall of 2010.

Four residents received training in 2010-11. Two first-year trainees started in 2010, one of whom is in a combined Medical Toxicology and OEM program. The other first-year trainee is interested in employee wellness and is completing a publishable research project on treatment of post-traumatic stress disorder in veterans at the San Francisco Veterans Administration medical center during his MPH year. Our second-year trainees both successfully graduated and are working in local occupational medicine clinics. In 2011, we had an exceptionally competitive group of applicants to our program. This year, we were able to accept seven residents into our program for our newest group of trainees.

Industrial Hygiene (IH) Program *Director: Mark Nicas, PhD, MPH, CIH*

The three core IH faculty members – Dr. Nicas, Dr. S. Katharine Hammond, and Dr. Stephen Rappaport – conduct IH-related research and serve as graduate student advisors. Dr. Nicas continues as the Editor-in-Chief of the Journal of Occupational and Environmental Hygiene. Dr. Hammond continues her research on exposure to second hand tobacco smoke and solvents. Dr. Rappaport continues as the

Director of the Berkeley Center for Exposure Biology, a multidisciplinary program working to develop a new generation of biomarkers and biosensors.

There were 10 IH students enrolled during 2010-2011 (nine MPH students and one PhD student). Of these 10 students, nine were supported by NIOSH traineeships. Five are continuing their studies in 2011-2012, and all are receiving NIOSH support. Two of the MPH students were awarded 3M Occupational Health and Environmental Safety Division Industrial Hygiene Scholarships. Another two MPH students conducted a chamber study showing that use of a popular hair-straightening product can cause short-term formaldehyde overexposure among hair stylists. One of the MPH students entered the UC-Berkeley PhD program in Environmental Health Sciences.

Occupational and Environmental Nursing (OEHN) Program: *Director: OiSaeng Hong, RN, PhD*

A total of 24 students (17 MS and 7 PhD) were enrolled in the program. Eleven graduated with MS, two with PhD. OEHN faculty and students were productive with 26 presentations, 19 publications, and five funded research projects with firefighters, operating engineers, taxi drivers, health care workers, and hospital cleaning workers. Our faculty's extramural funding from federal governments (FEMA and CDC) provided research training for PhD students through either their research residency or working as graduate research assistants. Two PhD students and a MS student made presentations as the lead author at national conferences such as American Public Health Association (2010), American Association of Occupational Health Nurses (2011), and a NIOSH conference on eliminating health disparities in the workplace (2011). Two faculty served on the Institute of Medicine Expert Advisory Committees on the Certification of Personal Protective Technologies and OHN curriculum in respiratory protection, respectively. Several students received honors and awards for their research work. Assistant clinical professor Segovia-Bain resigned in June 2011 to assume a fulltime nurse practitioner position at the UCSF Occupational Health Clinic. She will continue her clinical teaching as a faculty without salary. Dr. Drew-Nord, a 2009 PHD graduate, temporarily filled her position. A search has begun to hire a 60% clinical faculty position.

Ergonomics Graduate Training Program *Program Director: David Rempel, MD, MPH*

Programmatic changes include the new ergonomic laboratory methods course that was offered for the second year to graduate students by Dr. Matt Camilleri. In addition, the Bioengineering Department began an MS program; three students in this program were supported by NIOSH. This program offers an MS degree for engineering students interested in ergonomics graduate training. The program director was invited to join the National Academy of Sciences Board on Human Systems Integration, the board that addresses ergonomic and human factors issues for our nation.

In 2010-2011 two students graduated with an MS degree in Bioengineering with a concentration in ergonomics. One has begun medical school and the other entered a PhD program. Two recent prior PhD graduates were recently hired by the FDA to conduct medical product evaluations and one recent PhD graduate is a junior faculty in Physical Therapy at Samuel Merritt University and is responsible for teaching biomechanics and ergonomics. In 2010, this student received the award for best paper at the triennial, international PREMUS (Prevention of Musculoskeletal Disorders).

MS and doctoral research included studies on: optimal location of touch screens for continuous computer use; the effects of computer monitor viewing distance and font size on visual symptoms and fatigue; carpal tunnel syndrome in blue collar workers; ergonomic evaluation of the surgeon console for robotic surgery; the effects of keyboard key spacing on productivity, fatigue, posture and muscle activity; and the effects of dental tool diameter and weight on hand symptoms among dental hygienists. Graduate and undergraduate students were involved in publishing five peer-reviewed scientific papers and presentations at five scientific meetings. Ten undergraduate engineering students, primarily minority students, worked on research projects in the ergonomics laboratory.

Many R2P activities took place. State and national dissemination continued of a new device design, developed by the program, to assist construction workers with overhead drilling into concrete.

Occupational Epidemiology Program – Program Director: Ellen Eisen, PhD

We are in our first year of funding as a new training program. This fall semester, we have three graduate students, one MPH and two PhD students, enrolled as trainees. They are all involved in coursework, taking the required core in environmental health, occupational health, biostatistics and epidemiology. We have been successful in competing for new extramural research grants. In addition to

our ongoing studies of carpal tunnel syndrome and cancer incidence in autoworkers, we have also been funded by NIOSH and NIA to study cardiovascular disease in aluminum manufacturing workers exposed to fine particulate matter (PM_{2.5}). The two PhD students are involved in regular biweekly meetings of my Methods in Occupational Epidemiology research group. They are also working on research projects related to the aluminum studies. A new course, Case Studies in Occupational and Environmental Epidemiology, will be offered in the fall.

Continuing Education (CE) and Hazardous Substances Training (HST) Programs *Program Director: Barbara Plog, MPH, CIH, CSP*

The CE Program trained almost 3,000 OSH professionals in 85 courses during the worsening recession in California. Enrollments were down slightly in all categories except medicine, which had a small increase to 594: 256 nursing professionals were trained; there were 466 industrial hygiene and 245 safety trainees; and the number of “other” professionals was 1,388. The number of private industry professionals trained was 960. Attendees also came from federal government (160); state and local government (489); academia (843); and internationally (13). New course titles included the following: “*From Research to Practice: Evidence-based Ergonomics in the Workplace*” and “*Ionizing and Non-ionizing Radiation Safety*.” The CE Program is excited about a new “*Spring Health and Safety Webinar Series*” to be launched in 2012. There will be sessions on ‘*Electrical Safety*,’ ‘*Nanotechnology*,’ ‘*GHS & REACH*,’ as well as three sessions on ‘*Ergonomics*’ in February through May of next year. “*Occupational Health & Safety Principles and Nursing Certification Review*” will be offered twice in 2012.

The HST program trained 373 professionals in seven classes, and provided scholarships to some attendees. “*Hazards of Pesticides to Emergency Responders*” was not offered in 2010 due to illness of an instructor, but was back in Fall 2011. Occupational clinicians continue to take the on-line class, “*Recognition, Management and Reporting of Pesticide Illnesses*,” co-sponsored with the CA Department of Pesticide Regulation and Cal/EPA. Another on-line class was added: “*California Medical Supervision Program for Physicians Who Supervise Workers exposed to Cholinesterase-Inhibiting Pesticides*,” to fulfill a training need for this subgroup of physicians. One more pair of English/Spanish “*Train-the-Trainer Workshops for Pesticide Safety Educators in CA, AZ, Mexico and Tribal Communities*” was co-sponsored with the Arizona Department of Agriculture. Several successful and well attended green chemistry events were sponsored by COEH in the 2010-2011 budget year.

Outreach Activities: Labor Occupational Health Program *Diane Bush, MPH*

Outreach activities are conducted primarily by the Labor Occupational Health Program (LOHP), which serves as a community service and research-to-practice (R2P) arm of the ERC. Activities are funded through a rich mixture of core intramural funds and diverse extramural sources. Key activities this year include: 1) Over 80 training workshops and awareness seminars reaching more than 1700 individuals, including presentations at post secondary institutions throughout the region; workshops for high school teachers, students, labor organizations, worker centers and other community organizations; workshops for small business owners and managers; 2) Integration of OSH curricula into existing training, including for school health and safety managers and high school-based work experience and WorkAbility programs (for students with special needs); 3) Partnering with academic, labor and community-based partners on a variety of R2P projects; 4) Developing and piloting innovative new OSH training materials for practitioners and lay educators; 5) Raising OSH awareness in the community, including work with the California Department of Industrial Relations and Cal/OSHA on a continuing public information campaign on heat illness, which was adopted by federal OSHA and launched as a national campaign this summer; 6) Facilitating the translation of research findings to practice for active use by workplace and community leaders, through publications and by working with faculty on research dissemination. We partnered with NIOSH investigators and NORA Sector Councils to launch a series of Public Health Practice projects in the areas of: Protecting workers against aerosol transmissible diseases; Preventing young worker injuries by outreach to community health clinics; Improving safety and health for forestry service workers; Development of a fall prevention campaign for Latino workers; Promoting school employee injury and illness prevention programs; Partnering with food service inspectors to promote restaurant worker protection. We participated in the West/ON (Western Occupational Health Network) conference, presenting on research-to-practice, and seeking opportunities to provide R2P assistance throughout the region. We initiated a survey of all affiliated faculty to collect and document their many outreach activities in the region.